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ARTICLE NO: **575972**

ARTICLE TITLE: **The development of an evaluation framework for a Hospitalat Home service: lessons from the literature**

AUTHORS: **Rebecca Jester, Karen Titchener, Janet Doyle-Blunden and Christine Caldwell**

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Q8	Please provide city location in the reference: Mackintosh et al (2009).
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Q12	Please provide the significance of "*" along with the author name "Hernadez *et al.**" in Table 1.

The development of an evaluation framework for a Hospital at Home service

Lessons from the literature

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School of Health and Social Care, London South Bank University, London, UK
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Christine Caldwell
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Abstract

Purpose – The purpose of this paper is to share good practice with interested professionals, commissioners and health service managers regarding the development of an evidence-based approach to evaluation of an integrated care service providing acute level care for patients in their own homes in South London called the Guys and St Thomas' @home service.

Design/methodology/approach – A literature review related to Hospital at Home (HH) schemes was carried out with an aim of scoping approaches used during previous evaluations of HH type interventions to inform the development of an evaluation strategy for @home. The results of the review were then applied to the Donabedian (1988) conceptual model: Structure; Process; and Outcome and contextualised to the population being served by the scheme to ensure a robust, practical and comprehensive approach to evaluation.

Findings – Due to the heterogeneity of the studies it was not possible to conduct a systematic review or meta-analysis. In total, 28 studies were identified that met the inclusion criteria and included both HH to facilitate early discharge and admission prevention across a wide range of conditions. The key finding was there is a dearth of literature evaluating staff preparation to work on HH, models of delivery, specifically integrated care and trans-disciplinary working and few studies included the experiences of family carers.

Originality/value – This paper will be of value to those involved in the commissioning and delivery of HH and other models of integrated care services type services and will help to inform evaluation strategies that are practical, evidence based and include all stakeholder perspectives.

Keywords Health service, Literature review, Integrated care, Acute care in the home, Hospital at Home, Good practice

Paper type Literature review

Introduction

Q1 The aim of this paper is to share good practice with interested professionals, commissioners and health service managers regarding the development of evidence-based approach to evaluation of a integrated care service providing acute level care for

The authors would like to acknowledge the contribution of Duy Tran (Therapy Lead Practitioner), Jose Loreto Facultad (Matron, Clinical Development) and the other members of the @home evaluation working group.

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patients in their own homes in South London called the Guys and St Thomas' @home service. The paper includes background about the @home service, the method and results of a literature review about evaluation of Hospital at Home (HH) type schemes and the subsequent development of the evaluation strategy for @home.

Background

HH schemes provide acute level care in patients' own homes and are quite distinct from traditional community services in that they provide a level of care and treatment that would otherwise require admission to an acute hospital. There are different models of HH with some constituting acute hospital outreach with medical responsibility being retained by consultants within the hospital or alternatively extensions of community nursing and therapy services with medical responsibility being taken by the patient's general practitioner (GP). Such schemes typically provide support for early hospital discharge, admission prevention and end of life care, with some schemes focusing on all of these services and others on one specific function.

There has been a proliferation of HH type schemes across the developed world over the last two decades, mainly in an attempt to control burgeoning health care costs and a realisation that many older patients do not do well in acute hospital settings (Jester and Hicks, 2003a, ~~b).~~ HH schemes have been reported to be at least equivalent to standard acute hospitalisation in terms of patient mortality and morbidity (Utens *et al.*, 2013a, b) and often report improved patient satisfaction and reduced costs (Spiliopoulos *et al.*, 2008).

Guys and St Thomas' @home service

The @home service is a nurse led integrated care team (including dedicated GPs and consultant sessions) aiming to bring hospital care to patients in their homes or usual place of residence and is commissioned by Lambeth and Southwark Community Commissioning Groups. The service is predicated on the aim of integrated care to improve patient experience, improve efficiency and achieve better value from health care delivery and reduce fragmentation in patient services (Shaw *et al.*, 2011).

Southwark and Lambeth are amongst the most densely populated boroughs in London and the UK with a population of 610,000. The population is culturally and ethnically diverse with 28 per cent of people born outside of the European Union, 60 per cent from black, Asian or other minority groups and over 150 languages spoken. A large number of people registered with GPs within the two boroughs (43,300) are living with multiple long-term conditions, have complex needs and are frail or vulnerable and 6,700 people are in need of end of life care. There are extreme distributions of income, educational achievement, access to employment and housing quality. An integrated approach to health care provision was essential to meet the needs of this diverse population and provided the justification for the setting up of the @home service.

The service aims to take up to 300 new patients per month and focuses on reducing avoidable hospital admissions and supporting rapid and safe discharge from three London hospitals' accident and emergency (A&E) departments, acute assessment units and acute wards. Referrals from the acute hospitals are facilitated by three in-reach nurses based at St Thomas' and King's College Hospitals their roles include participating in post take ward rounds. In addition referrals are taken from GP's, specialist community teams and via the London Ambulance Service. The scheme provides intensive care with treatments, interventions and monitoring for a short episode through integrated team work with the aim to support the patient to return to

their previous or an improved health status following an acute episode of ill health. The scheme operates 365 days per year from 8 a.m. until 11 p.m., typically patients receive visits up to four times a day during their episode of care which on average ranges between three and seven days.The patients are assessed within two hours of referral. The main criteria for referrals are adults aged 18 years and over, living and registered with a GP within Lambeth or Southwark and who have an acute onset of illness (this can include acute exacerbations of chronic conditions). The most frequently occuring conditions/interventions for which patients are admitted include:

- chronic obstructive pulmonary disease (COPD);
- heart failure (HF) – including administration of IV furosemide;
- IV antibiotics for wound infections, chest infections, cellulites, urinary tract infections (UTIs);
- complex falls;
- hyper/hypotension, hyper/hypoglycemia;
- hyponatraemia;
- palliative care in partnership with other services;
- deteriorating renal function;
- post-operative care;
- hyperemisis; and
- trial without catheter post-surgery.

A summary of the staffing establishment and medical cover is provided in the following list.

Overview of staffing establishment for @home (split between Lambeth and Southwark sites):

- 1 clinical lead/deputy head nursing 8B;
- 4 clinical matrons 8A;
- 1 practice development matron 8A;
- 1 clinical pathway matron 8A;
- 10 band 7 nurses (3 of which are hospital in-reach);
- 17 band 6 nurses;
- 7 band 5 nurses;
- 13 rehabilitation support workers;
- 1.5 pharmacists;
- 4 GPs;
- 8 sessions of consultant geriatrician input (each session is four hours);
- 1 band 8A physiotherapist (therapy lead), 2 band 7 physiotherapists, 4 band 6 physiotherapists;
- 2 band 6 occupational therapists;

- 2 full time social workers one from each borough;
- 1 business support manager – band 6; and
- 5 administration support staff – band 4.

Approach to developing an evaluation plan

The @home team were keen to develop a robust evidence-based evaluation strategy to provide feedback about the efficacy and quality of the service for service users, commissioners and themselves to embed a culture of continuous quality improvement and value for money. An evaluation working group was formed and included a local Professor of Nursing who had previous research outputs related to HH type schemes. A review of the literature related to (HH) schemes was carried out with a main aim of scoping approaches used during previous evaluations of HH type interventions to inform the evaluation strategy for @home. It was not possible to conduct a systematic review or meta-analyses due to the heterogeneity of the studies, but a systematic approach to the search and quality appraisal of the studies was used congruent with an integrative review. The principle aim of the review was to identify what approaches had been used in previous evaluations of HH type services including: range of stakeholders included, methodologies employed, types of outcome measures used and if economic evaluation was included. The review aimed to identify strengths and limitations of the individual studies and the collective body of literature to provide evidence to develop the evaluation strategy of @home.

The literature search question was used framed using PICO.

Population – adult patients with a range of chronic conditions such as COPD, HF and post-surgical procedures including total hip and knee replacement and open reduction and internal fixation following proximal femoral fractures.

Intervention – admission prevention and/or early discharge from acute hospital to HH.

Comparison – traditional acute hospitalisation versus HH schemes.

Outcomes – clinical outcomes (function, complications, mortality, morbidity), disease specific and generic health outcome measures, economic analysis, readmission rates, length of stay, patient and carer preference and satisfaction, staff preference and satisfaction, commissioner/referrer satisfaction.

The following keywords were used: Hospital at Home, early assisted discharge, hospital based home care services, acute care in the home, hospital outreach, patient preference, patient satisfaction, staff preference, staff training, staff education, job satisfaction, health related quality of life, COPD, exacerbations, hip fractures, proximal femoral fractures, hip and knee replacements, length of stay, readmission rates, economic analysis.

These keywords were searched in combination with Boolean indices (and/or/not). The search inclusion criteria included systematic reviews, meta-analyses, RCTs and quasi-experimentation and mixed methods. The search included all English language papers from 1997 to 2014 and the following databases were searched Medline, Cinahl, Cochrane, Embase, British Nursing Index. In addition reference tracking and hand-searching of popular journals was used.

Once the search was complete all titles and abstracts were read and checked for applicability by two of the authors (R.J. and C.C.). Excluded studies were noted with the reason for exclusion and the remaining papers were divided and appraised by the two reviewers using relevant critical appraisal tools from the CASP website. Once the studies

had been reviewed data extraction was completed and entered into a summary table. The two reviewers discussed their quality assessment of the individual studies to minimise reviewer bias. Studies by Jester *et al.* were reviewed by C.C.

Results of the literature review

In total, 107 studies were identified through the search strategy; the final number included in the review was 28. In total, 75 studies were excluded following duplication removal and appraisal of abstracts and a further four studies were excluded following review of the full articles. The included studies covered both HH to facilitate early discharge and/or HH to prevent admission to acute hospitals across a wide range of conditions, although the majority of included studies relate to acute exacerbations of COPD and proximal femoral fracture. Key findings from the review are presented in Table I.

The main lessons learnt from the review were that a wide range of approaches to evaluation of HH had been used including RCTs, quasi-experimentation comparing HH with in-patient care, retrospective and prospective analyses of HH patient outcomes, a small number of systematic reviews (two), seven studies included some form of economic evaluation and seven of the studies included the perspectives of family carers. Only one study included the perspective of staff working on HH (Utens *et al.*, 2013a, ~~b~~) highlighting there is a real dearth of evaluation regarding staff training and education to work on HH and very limited literature regarding staff satisfaction and preference and referrer satisfaction. Many of the experimental designs had relatively small sample sizes and this often was not supported by a justification of the number of participants. Also that experimental designs comparing HH to hospital-based care are only suitable when the scheme has one defined purpose, i.e. admission prevention or early discharge and focuses on one specific condition such as COPD. Many of the papers reviewed included evaluation of length of stay, readmission rates, mortality at various points following discharge from HH and some type of health-related quality of life (HRQoL) measures and patient satisfaction. However, Taylor (2007) concluded that mortality is usually an uninformative outcome in patients with COPD and would need 1,000 patients to detect difference between traditional in-patient care and HH and that readmission rates lack sensitivity and are complex to capture and require a sample size of 3,000 patients to detect difference with traditional in-patient care. However, the evaluation steering group felt readmissions rates were valid for the @home evaluation as a survey approach rather than RCT is being employed.

The papers considered most useful to inform the @home evaluation were Schofield *et al.* (2006) which included comprehensive evaluation of patient and family satisfaction and future care preference; Taylor *et al.* (2007) which presented a useful checklist of what to include in evaluation of HH and Utens *et al.* (2013a) which looked at evaluating the perceptions of acute hospital and HH staff preferences and satisfaction. Also a further paper by Utens *et al.* (2013b) evaluating patient preference and satisfaction with HH for COPD patients included a copy of a useful questionnaire originally developed and validated by Ojoo *et al.* (2002) evaluating patient satisfaction with HH. The results of the literature review were presented to the evaluation steering group and informed the development of the evaluation strategy which is detailed below.

Development of the evaluation strategy

Although the evaluation working group did not include service users, service user views were elicited via discussion with the Trust's Communications and Public Relations group and the Patient and Public Engagement Specialist and patient

Table I.
Key findings from the literature review

Author/year and location	Type of study/paper	Stakeholders included	Outcome measures used
1. Taylor *et al.* (2007), London	Paper discussing approaches to evaluation of HH schemes (not primary research)	Paper focuses on HH or patients with an acute exacerbation of COPD	n/a
2. Gonzalez Barcala *et al.* (2006), Spain	Quasi-experimentation comparing HH and in-patient control	Patients attending ED with respiratory infection, pneumonia, pulmonary insufficiency or exacerbation of COPD 25 allocated to HH and 50 matched subjects to traditional in-patient care	Time to discharge Readmissions within 3 months and mortality within 3 months Patient satisfaction questionnaire
3. Chetty *et al.* (2006), Aberdeen	A literature review of 6 RCTs comparing HH and in-patient controls for patients with exacerbations of COPD (Skwarsda *et al.*, 2000; Shepperd *et al.*, 1998; Ojoo *et al.*, 2002; Hernandez *et al.*, 2003; Davies *et al.*, 2000; Cotton *et al.*, 2000) A survey of their own local HH	Patients with exacerbations of COPD within 6 RCTs 810 patients with exacerbations of COPD admitted to their own HH over 4 years	RCTs included rates of mortality and readmission rates up the point of 12 weeks Length of stay (LoS) General satisfaction and acceptability of the scheme for patients and their GPs by questionnaire Health-related QoL (tool/s not specified) St George's respiratory questionnaire (SQRQ) Cost effectiveness For their own scheme data regarding number of patients over 4 years and number of times readmission required. They also used a patient satisfaction questionnaire and describe the admission and exclusion criteria
4. Sala *et al.* (2001), Spain	Non-randomised prospective comparison study of an early discharge (ED) scheme	Patients attending A&E with exacerbation of COPD 105 allocated to ED scheme, 100 patients in comparison group (non-randomised allocation. ED scheme patients had to live in the city)	(i) LOS for initial hospitalisation (ii) Admission during first 2 weeks of home care (iii) No. of home visits and phone calls (iv) Readmission to hospital after 2 weeks post-discharge from HH

(*continued*)

Table I.

Author/year and location	Type of study/paper	Stakeholders included	Outcome measures used
5. Angus *et al.* (2000), London, UK	Prospective RCT	Patients attending A&E with exacerbation of COPD 100 randomised to HH, 50 to hospital care (some patients refused HH care)	Readmission at 2 weeks and 3 months, changes in FEV.Sub.1 Mortality HRQoL
6. Hernandez *et al.* (2003), Spain	RCT	Patients attending A&E with exacerbation of COPD 121 randomised to HH, 101 to conventional care Some patients in both groups were hospitalised; others discharged within 24 hours. Only HH patients had f/u by CNS	Mortality Readmissions HRQoL Patient satisfaction Cost of care Improved self-management 8 week follow-up
7. Reishtein (2005)	Commentary on Ram *et al.* (2004)	n/a	n/a
8. Puig-Junoy *et al.* (2007), Spain	RCT	Patients attending A&E with exacerbation of COPD 103 randomised to HH, 77 to conventional hospital (CH) care	Health care costs (relating to study by Hernandez *et al.*, 2003)
9. Khalid *et al.* (2007), UK	Retrospective analysis	1,078 patients attending A&E with exacerbation of COPD who were discharged to HH	Readmission rates and mortality rates In patients with low PaO_2 and/or living alone
10. Utens *et al.* (2014), the Netherlands	RCT	Informal caregivers of patients with COPD who were randomised to either HH ($n = 62$) or usual hospital care ($n = 62$)	Caregiver strain, preference, and satisfaction with care at day 7 and 90 days CSI used

(*continued*)

Table I.

Author/year and location	Type of study/paper	Stakeholders included	Outcome measures used
11. Spiliopoulos *et al.* (2008), Australia	Retrospective analysis	363 participants (1998-2006) in community programme designed to assist people with advanced COPD to live at home. Includes a Pulmonary Rehabilitation program and an early discharge service	Hospital admission rates, readmission rates, and hospital length of stay (LOS) Patient satisfaction Costs
12. Mader *et al.* (2008), USA	Descriptive study of implementation of HH programme in a veterans hospital	225 in-patients or A&E patients with: Pneumonia; CHF; COPD; cellulites. All ages accepted. All were "veterans", 98.3% male	Safety of HH LOS Readmission rate at 7 days and 30 days Mortality Costs
13. Cryer *et al.* (2012), USA	Retrospective comparison of two groups; HH and hospital care (not randomised)	In-patients or A&E patients with: Pneumonia; CHF; COPD; cellulites; DVT; PE; UTI; nausea and vomiting; dehydration $n = 323$ HAH $n = 2{,}405$ acute care	Primary – costs Secondary – mortality Length of stay clinical outcomes satisfaction fall rates 30 day readmission rates
14. Jurado-Gamez *et al.* (2013), Spain	Prospective parallel-group study. Seeks to identify prognostic markers Does home follow-up after exacerbation of COPD reduce the rate of readmission? Which clinical variables can predict readmission?	71 patients 36 patients in intervention group (a home visit by a nurse, 48-72 hours after discharge) 35 patients in conventional treatment group	Readmission rates Predictor variables Nurses measured $SaPO_2$ and carried out spirometry
15. Dunican *et al.* (2011), Ireland	Prospective multivariate analysis to identify predictive variables associated with readmission	349 patients with acute exacerbation of COPD	Readmission rates, predictor variables

(*continued*)

Table I.

Author/year and location	Type of study/paper	Stakeholders included	Outcome measures used
16. Jeppesen *et al.* (2012), Cochrane	Cochrane review of 8 RCTs comparing HH and in-patient controls for patients with exacerbations of COPD (Skwarsda *et al.*, 2000; Ricauda *et al.*, 2008; Ojoo *et al.*, 2002; Hernandez *et al.*, 2003; Davies *et al.*, 2000; Cotton *et al.*, 2000; Nicholson, 2001; Nissen, 2007)	Patients with exacerbations of COPD within 8 RCTs	*Primary outcomes* 1. Readmission rate 2. Mortality *Secondary outcomes* 1. Health-related quality of life measures 2. Lung function measurements 3. Exacerbations 4. Bronchodilator use 5. Patient and/or carer satisfaction and preference 6. Costs and/or health economics 7. Total days of care provision in each study group
17. Jester and Hicks (2003a) (part 1), UK	Longitudinal follow-up study using both qualitative and quantitative methods	109 joint replacement patients and 21 informal carers 64 in HH group, 45 from in-patient group	Clinical effectiveness of HH compared to in-patient interventions (using WOMAC tool) Patient satisfaction (HPSI used) Impact on carers (semi-structured interviews)
18. Jester and Hicks (2003b) (part 2), UK	Paper discusses methods of economic evaluation of HH scheme	109 joint replacement patients and 21 informal carers	Economic feasibility of HH compared to in-patient interventions
19. Iyengar *et al.* (2007)	Cohort study of patients discharged early onto an early rehabilitation at home scheme (RAHS)	THR, $n = 220$ and TKR, $n = 174$	LoS from day of patients' surgery to discharge to RAHS. LoS on RAHS, Incidence of complications, DVT, wound infection, joint dislocation Readmission for complications whilst on RAHS Basic cost/savings analysis

(*continued*)

Table I.

Author/year and location	Type of study/paper	Stakeholders included	Outcome measures used
20. Jacobs *et al.* (2006), Israel	Paper discusses the impact of closure of a 400-bed home hospital programme. Used regression analysis	Patients over 65 years old (general medical including CHF, COPD and Palliative care)	Hospitalisation rates measured prior to and following HH closure. Data collection from 01/2000 to 10/2002 (HH open) and 11/2002 to 10/2003
21. Crotty *et al.* (2003), Australia	RCT comparing early discharge + home-based therapy compared to conventional in-patient care. Followed-up at 4 months and 12 months	66 older adults with hip fracture	Modified Barthel Index, TUG test, SF 36 and Carer Strain Index
22. Simpson, Canada	Quasi-experimental design. Pre/post-implementation of HH comparison, which included qualitative interviews as well as other outcomes Home care provided by community health services in Calgary following early discharge	Older adults with hip fracture and their carers. 23 patients in the HH group and their family members were interviewed 6 weeks after discharge Pre-implementation group, $n = 20$ and post-implementation group, $n = 30$	Pain scores, cognitive status (Folstein), FIM, QoL, patient satisfaction, LoS, readmission rates and cost
23. Schofield *et al.* (2006), Scotland	Mixed methods design of a postal survey and sub-set of qualitative interviews	104 adult patients registered with the Acute Respiratory Assessment Service who has experienced hospitalisation for their respiratory condition during the past year. Sub-set of patients and family carers for qualitative interviews	Postal survey questionnaire. The questions included experience of treatment hospital only, hospital with HH or HH only and perceptions and feelings about being treated in hospital and being treated at home. Also a section on disease specific QoL Qualitative interviews exploring the illness experience, care preferences and decision making and HH and hospital environments

(*continued*)

Table I.

Author/year and location	Type of study/paper	Stakeholders included	Outcome measures used
24. Utens *et al.* (2013a), the Netherlands	A survey of service providers experience of and satisfaction with working on or involvement with HH scheme for patients with exacerbation of COPD	Staff (pulmonologists, GPs, junior hospital doctors, hospital respiratory nurses, generic and specialist community nurses from 3 hospitals 72 HH schemes	A survey using a combination of multi-choice and open ended questions (postal questionnaire) to elicit role differentiation, role transitions and staff satisfaction with HH or patients with exacerbation of COPD
25. Ram *et al.* (2004)	Systematic review and meta-analysis of 7 RCTs comparing HH and in-patient care. Cotton *et al.* Davies *et al.* Hernadez *et al.** Nicholson *et al.* Ojoo *et al.* Shepperd *et al.* Skwarska	Trials of comparisons of HH and in-patient care for patients with exacerbations of COPD. 754 patients	Mortality and readmission rates were the two measures used within the 7 trials included in the review
26. Ojoo *et al.* (2002), UK	RCT comparing HH and in-patient care for patients with acute exacerbations of COPD	$n = 54$ (27 randomised to each arm of trial)	Comparison of patient and carer satisfaction at 2 weeks after discharge. Questionnaire administered face-to-face
27. Caress *et al.* (2009)	Literature review to identify the needs of carers of patients with COPD	35 papers reviewed including RCTs, quasi-experimental, pre/post-intervention, descriptive, and qualitative studies	What are the information and support needs of carers? What information on carers' needs is reported in the literature? Which interventions do carers find helpful?
28. Utens *et al.* (2013b), UK	RCT	$n = 139$ adults with COPD exacerbations randomised at 4 days to HH until day 7 or 7 days of hospitalisation	Report of one aspect of this RCT by Utens focusing on patient satisfaction and patient preference for future care. Measured at T+4 days and T+90 days. Measured with a translated version of questionnaire developed by Ojoo

Q12

representation during the designing of the pilot service. The group following discussion of the literature review decided on an evaluation framework to ensure all aspects of evaluation from all stakeholders was collected and analysed using a systematic approach. The framework was based on the Donabedian (1988) conceptual model: Structure; Process; and Outcome and Table II details how the final evaluation methods are situated within the model. In addition the group used the recommendations of Taylor *et al.* (2007) for reviewing HH schemes.

The steering group discussed which disease specific and HRQoL measures would be suitable for the @home patient population and were evidence based to support their validity, reliability, sensitivity and specificity for the main types of conditions patients

	Evaluation objective/question	Evaluation tool/method
Structure	Identify optimal experience and qualities needed by staff including skill mix	Screening tool developed and validated by R.J. used during recruitment process and staff focus groups
	Are staff trained and prepared appropriately for their roles within the scheme?	Focus groups with staff to evaluate their training and preparation
	Is the skill mix appropriate to optimise flexibility of the workforce and trans-disciplinary working? avoiding duplication of visits	Training needs analysis focusing on optimisation of trans-disciplinary working to avoid duplication of patient visits
	Identify hours of operation to meet the needs of patients and carers	Part of patient satisfaction/preference questionnaire and referrer satisfaction questionnaire. Analysis of data from @home Scorecard regarding number of face-to-face and telephone contacts
Process	Referral numbers; number of patients accepted and declined and reasons	Data collected weekly and monthly via @home Scorecard
	Are capacity targets being met and if not why?	Data collected weekly and monthly via @home Scorecard
	Number of patients refusing the service and reason why	Collected and inputted onto @home local data base
	Appropriateness of number and length of visits	Data from staff focus groups and analysis of number of and nature of patient contacts (telephone and face-to-face)
	Equity of access to service	Analysis of referral trend data and referrer satisfaction questionnaires
Outcome	Length of stay – mean/modal	@home Scorecard data analysis
	Patient satisfaction and preference	Patient satisfaction/preference questionnaire
	HRQOL and disease specific outcomes (morbidity)	All patients have Barthel Index scores and Patient Health Questionnaire (PHQ-9)
	Reduction in health inequalities	calculated on admission and discharge. In
	Adverse incident reporting and complications	addition patients with COPD have the COPD Assessment Test (CAT) and patients with
	Readmission rates	heart failure have the Minnesota Living with Heart Failure Questionnaire (MLHFQ) completed on admission and discharge
		Data regarding referral patterns analysed by postcode and patient's GP
		Reported via Datix
		@home Scorecard data analysis (over 3,000 patient data sets anticipated)

Table II.
Evaluation framework: application of the evaluation objectives to Donabedian's model

were admitted with. A number of experts in health care management recommend the use of generic and disease specific outcome measures to ensure a comprehensive evaluation (MacKintosh *et al.*, 2009; Bowling, 2001), Details of the disease specific and HRQoL tool selected can be found in Table II. Patient satisfaction has for some time been viewed as a legitimate goal of health care services, with evidence linking patient dissatisfaction with poorer outcomes mainly due to reduced concordance with advice and treatment regimens and the negative impact on psychological well-being which in turn has a negative impact on physical health, specifically the immune and gastrointestinal systems (~~Lee,~~ 1990). The working group developed a patient satisfaction and preference questionnaire based on key elements of the literature review and the tools used by Utens *et al.* (2013a) and Jester and Hicks (2003a, b) as their validity with HH patients had been established, but required some modification to meet the specific requirements of this evaluation.

Summary

This paper has discussed how a review of the HH literature was used to inform the development of a comprehensive evaluation approach for @home. Also how both Taylor's recommendations and Donabedian's model were used to provide a systematic approach to the evaluation. The review demonstrated there is a paucity of literature regarding the staff experience of working on HH type schemes and specifically how nurses and therapists are trained and educated for their roles and commissioner/refer satisfaction with HH schemes.

It is of the utmost importance that any evaluation is practical and user friendly. Many of the patients admitted to @home are older and frail and may not be able to cope with complex/and or lengthy questionnaires. It is also important that patients are assured that data regarding their satisfaction with the scheme is confidential and so they are provided with a self-addressed envelope and are not required to provide their details. In addition nurses and therapists working on the scheme have to be trained to administer the outcome measures to optimise inter-rater reliability and achieve accuracy of measurement. The authors suggest that the approach to development of the evaluation strategy described in this paper is potentially transferable to other models of integrated care, such as home care reablement, intermediate care teams, crisis response teams in mental health, etc.The authors plan to disseminate the results of the evaluation of @home through future publications.

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